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Report

Strategic Environmental Planning In the Development of Country Strategic Plans

A proposal

By

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EXECUTIVE SUMMARY

A planning process and tools for introducing the environmental dimension into country strategic planning is outlined in this paper. Environmental trends and new environmental challenges that intersect social and economic development in Africa requires strategic thinking and planning. Environmental assessment alone is not sufficient to assure that Country Strategic Programs (CSP) will meet these trends and challenges. USAID's experience in Africa in the past 25 years and that of other donors point to the need to think strategically about the environment and natural resources, to take a long term view (10 to 20 years), to be flexible, and to develop concrete actions for achieving strategic goals.

In current CSP planning, the focus on environmental issues is those Strategic Objectives (SO) that specifically address biodiversity conservation and tropical forest conservation, with the anticipation that compliance with Regulation 16 will ensure that environmental impacts associated are not overlooked. However, we argue that there is an additional need:

- for examination of the totality of the Country Program through an environmental lens, at early stages of strategic planning in all sectors, at mission and multi-mission levels,

- for consistent, systematic cross-sectoral consideration of the environment and natural resources in SO planning,

- for planning that is oriented by the goal of environmental sustainability at the initial stages of SO development, and

- for a proactive stance vis a vis the environmental dimension in all sectors.

Furthermore, through early attention to the strategic aspects of the environmental dimension, SO teams should realize benefits in implementation efficiency as well as attainment of program goals. Specifically, a process of strategic environmental planning:

- will help to avoid options that may be unfeasible or that generate more impacts than others.

- can find and create intersectoral linkages and synergies between NRM/ENV programs and other sectoral programs, improve the logical coherence, and avoid disconnects between stated objectives, indicators, activities, etc.

- can help avoid costly delays after SO is in the implementation stage to the extent that early consideration of impacts is dealt with proactively

This paper makes proposals for introducing strategic environmental planning (SEP) into the CSP process. Strategic environmental planning is a planning process that recognizes environmental needs and possibilities in all sectors, and undertakes to identify them at the earliest point in USAID program planning. The CSP planning process is the indicated context for this work, especially for early definition of topical and geographic priorities, cross-sectoral coordination possibilities, synergies, and donor coordination.

We propose that strategic environmental planning should consist of three elements:

1. A planning process that ensures review of relevant environmental issues
2. Environmental information resources to inform the planning effort
3. Data gathering and analysis tools that facilitate the strategic environmental planning process

The paper aims to provide USAID missions with a "Mission-friendly" guide that all SO teams, regardless of sector, can readily use for strategic environmental planning at the point of CSP development. The heart of our proposal is found in Chapter II. This section of the paper guides mission planners, analysts, and program implementers through each stage of the CSP development process. It offers procedures and strategic environmental questions at each stage that incorporate aspects of the three elements of SEP (listed above) as appropriate to that stage, and provides examples of application from USAID Missions in Africa. We also offer a guide to resources that can be employed, and suggestions for when it would be most useful and efficient to call on expertise from the Mission Environmental Officer, Regional Environmental Officers, or other skilled professional help.

Chapter III presents descriptions of a wide range of data gathering and analysis tools that can facilitate strategic environmental planning during the development of a USAID CSP or a new or revised SO. Technological advances in tools and approaches for strategic planning have been remarkable over the past several years. The reader is urged to explore these tools to find the one or several that promise the best fit with his or her SO team's capabilities, interests, and comfort level. However, do not be afraid to try something new.

I. INTRODUCTION

A. The Need for Strategic Environmental Planning

Environmental trends, persistent environmental problems, and new environmental challenges that intersect social and economic development in Africa call for strategic thinking. Experiences with Regulation 216 over the past 25 years have shown that many environmental problems are best dealt with proactively, not reactively, and that environmental issues crop up in all sectors. USAID's and other donors' experiences in Africa in the past 25 years in programs dealing with the environment and natural resources point to the need to take a long term view (10 to 20 years), to be flexible, and to integrate environmental and development goals.

Strategies and related programs for addressing biodiversity and tropical forest conservation have been developed and are evolving. Strategies to reverse land degradation and desertification have proven more difficult to develop and apply to the wide range of soil environments in Africa, but promising solutions have been developed for some kinds of soils.

In the last 10 years environmental problems related extreme weather events that imperil vulnerable populations, civil wars, and the resulting displacement of very large numbers of people have been added to longer term trends.. The AIDS pandemic that now has reached 24.5 million people in Africa and kills 2 million each year is affecting all endeavors, including efforts to manage environmental resources (see the text box on the following page). Dealing with the environmental and human dimensions of such problems requires a measure of planning and coordination that goes beyond the confines of sectors and their corresponding line ministries

Planning approaches useful to a strategic approach to environmental issues have been supported by USAIDs in various places. Specialized and regional assessments of environmental resources and services have been carried out. These have contributed to the identification of priority areas and environments, the better analysis of certain problems, the understanding of particularly effective approaches for addressing environmental problems. Some USAID missions have commissioned studies preparatory to CSP exercises that have been employed in CSP planning. Also new information resources and analytical tools of use to strategic environmental planning have become available, some with USAID support. Several are too new to have been used in CSP exercises but will be available to the next generation of CSP planning (see Part III of this paper).

The proposals in this paper draw on these experiences and profile the various tools and

information resources that can be employed in SEP.

The Implications for Strategic Environmental Planning of the AIDS/STD Epidemic.

USAID support for sustainable agriculture, renewable resource management, and community based natural resource management implicitly assumes the availability of a certain amount of surplus or extraordinary labor, and the existence of a relatively stable rural society. The high percentage of adults infected with AIDS in rural as communities. clearly calls into question such assumptions. In many parts of Africa a shortage of able workers at the farm or community will make it impossible to promote actions that add to the workload of a family already handicapped by the death of adult members.

Efforts to restore degraded environments, inhabited by AIDS-ravaged communities, would obviously have to import the needed labor, perhaps from the ranks of urban unemployed.

The increasing numbers of AIDS orphan also cries out for a solution to their basic survival needs, not to speak of their emotional and spiritual needs. Finding ways to help young people create urban gardens and achieve a measure of self-reliance and food could also be joined to a program to clean up urban areas that have been blighted by pollution, erosion or neglect.

Strategic environmental planning is a planning process that recognizes environmental needs and possibilities in all sectors, and undertakes to identify them at the earliest point in USAID program planning. The CSP planning process is the indicated context for this work, especially for early definition of topical and geographic priorities, cross-sectoral coordination possibilities, synergies, and donor coordination.

In current CSP planning consideration of environmental issues at the strategic planning level is undertaken for SOs corresponding to the Agency's goal for protecting the world's environment for long-term sustainability. However there is an additional need:

- for examination of the totality of the Country Program through an environmental lens, at early stages of strategic planning in all sectors, at mission and multi-mission levels.

- for consistent, systematic cross sectoral consideration of the environment and natural resources in S.O. planning

- for planning that is oriented by the goal of environmental sustainability at the initial stages of SO development

- for a proactive stance. vis a vis the environmental dimension in all sectors

There is a practical side to SEP as well. Early attention to strategic aspects of the environmental dimension will convey benefits in implementation efficiency as well as attainment of program goals. Strategic environmental planning:

- will help to avoid options that may be unfeasible or that generate more impacts than

others

- can find and create intersectoral linkages and synergies between NRM/ENV programs and other sectoral programs, improve the logical coherence, and avoid disconnects between stated objectives, indicators, activities, etc.

- can help avoid costly delays after SO is in the implementation stage to the extent that early consideration of impacts is dealt with proactively

The sections that follow outline the way SEP can be carried out during CSP planning.

II. STRATEGIC ENVIRONMENTAL PLANNING

A. Introduction

This paper aims to provide USAID missions with a "Mission-friendly" guide that all sectoral SO teams can readily use for strategic environmental planning at the point of CSP development. Our proposal, which follows in the next chapter of this report, guides mission planners, analysts, and program implementers through each stage of the CSP development process. It offers both a process and procedures, and strategic environmental questions at each stage. It describes three elements necessary for strategic environmental planning in the context of CSP development, lists important principles to guide the process, and makes specific recommendations for strategic environmental planning during the different stages of CSP planning and development. We also provide examples of application from USAID Missions in Africa. Finally, we offer a guide to resources that can be employed, and suggestions for when it would be useful to call on expertise from the Mission Environmental Officer, Regional Environmental Officers, or other skilled professional help.

B. Three Elements of Strategic Environmental Planning at the CSP level

Incorporating the systemic and cross-sectoral nature of environmental concerns into CSP development requires a structured process that effectively deals with a wide spectrum of information at different levels of approximation. Strategic environmental planning consists of three elements: the planning process, information, and analytical tools.

1. A planning process that ensures review of relevant environmental issues

The strategic planning process entails explicit consideration of intersectoral environmental linkages and synergies, identification of proactive environmental elements, consideration of impacts in the formulation of development hypotheses, and logical consistency in the chain: problem > hypothesis >intermediate results.>illustrative activities > indicators.

The process consists of breaking down the CSP development into its different stages, posing strategic questions to be answered at each stage, and making use of information resources and analytical approaches appropriate to the questions. Section 4 below outlines the way this can be carried out

2. Environmental information resources to inform the planning effort.

A number of information resources can be drawn upon at different stages of the CSP. The Environmental Threats and Opportunities Assessment (ETOA) is an information and analytical resource that can be applied to all SOs. Similarly the required Environmental Analysis of biodiversity and tropical forests can be expanded to capture information on trends in agricultural land quality, urban and town environments, and demographic trends related to pressures on land and forest resources. For individual SOs, special planning studies, such as evaluations or reviews of problems in the SOs sector are often commissioned and these can be designed to include relevant SO-specific environmental information. For Environment/Natural Resource-specific SOs, numerous background documents including NEAPs have been developed in the recent past, and USAID's Environmental Analysis and ETOA assessment will be helpful, though special studies may be needed to update the mission's knowledge or re-assess priorities.

3. Data gathering and analysis tools that facilitate the strategic planning process

In 2000 we have models and tools for data gathering and analysis that weren't available 5 years ago, especially geospatial tools such as GIS and remotely sensed images, now much cheaper and easier to access than in the recent past (see the textbox on geospatial tools on the following page). Useful tools or models that should facilitate the process are reviewed in Section III of this report.

Geospatial Tools and Data for Strategic Environmental Planning

The next round of CSP exercises can take advantage of the newly available geospatial data and tools.

The term 'geospatial ' serves to bracket an assortment of digital data, sensors, and computer-based tools used to record geographic data, analyze it, and create maps. Included are:

Remotely sensed satellite imagery and digital air photography
Imagery analysis
Aerial videography, taken from fixed wing airplanes
Geo-referenced data sets (data with latitude and longitude values used to make digital maps) and geographic positioning systems (GPS).
Geographic information systems (GIS)

The significance of geospatial tools and data for strategic environmental planning cannot be over-emphasized. GIS applications allow diverse data to be manipulated, combined, and compared.

Technology improvements since 1995 have made the geospatial data available at lower cost and the tools for analyzing and displaying the data both easier to use and suited to personal computers, which now can perform as well or better than the $250,000 work stations needed in the 1980's to run GIS programs and process satellite imagery.

. New applications of GIS and geospatial data, such as DEVECOL/Africa are putting these geospatial data within the reach of individuals not trained in GIS. (See Section III.B for a review).

C. Principles to Guide Strategic Environmental Planning

At present there is no regulation or administrative requirement to undertake strategic environmental planning. However, a number of principles based on USAID's and others' experience can serve to animate the process. The principles will not sound new to many USAID staff who have been involved in the CSP process and program implementation. Their purposive application to new and on-going CSP planning will orient the work.

1. Explicit attention to synergies among SOs offered by geographic overlap, topical linkages, or systemic interactions

2. Explicit attention to the environmental dimension of Title II supported programs and related analysis support.

3. Identification of environmentally proactive possibilities in the IR and sub IR level for SOs other than E/NRM.

4. For E/NRM SOs, testing of the logical coherence between the SO hypothesis

and illustrative actions and the environmental problem or possibility as set forth in the ETOA and SO-specific studies

5. Information sharing and coordination with other operating units/SO teams in the mission and with AFR/SD; REDSO/ESA; BHR, Global Bureau Programs

6. Coordination with other donors on environmental data collection and monitoring. Coordination could be opportunistic or proactive with USAID taking leadership. Coordination begins with information sharing and could culminate in important synergies that strengthen USAID objectives.

These principles will be articulated in various ways in the sections that follow.

D. Five Stages of CSP Development with Strategic Environmental Planning

We have broadly defined five stages of CSP development to demonstrate how the three elements and principles described above can be applied. In general, the stages follow the ADS guidelines for CSPs and strategic planning. The stages are summarized in Figure 1 on the following page.

At each stage, there are environmental considerations, strategic questions, information sources, and appropriate tools and means of analysis that can facilitate the incorporation of environmental factors and issues into program planning and development.

This section also provides examples of proactive environmental analysis using different processes and tools in the strategic planning process from African Missions (e.g., REDSO/ESA, USAID/Uganda, USAID/Malawi, USAID/Madagascar). These examples are briefly presented in text boxes throughout the chapter.

Table 1, found at the end of this section, *"Making the Environmental Dimension Explicit in Strategy Development"* presents a summary view of the SEP process and elements described next.

Fig 1. Five Stages of CSP Development with Strategic Environmental Planning (SEP)

Stage 1 – Mission-wide strategic problem analysis, trend analysis and assessments; e.g., conflict vulnerability assessments, environmental analysis (as per Sections 118, 119), economic and political analysis, poverty analysis, environmental threats and opportunity assessments. Supporting cartographic analysis.

SEP Outcome: Definition of national environmental priorities, areas of concern

Stage 2 – SO-specific assessments: Sector assessment or updates, information gathering and review of Stage 1 Mission analyses, and reviewing of alternative SO possibilities for selecting a draft strategic objective.

SEP Outcome: Definition of SO or sectoral environmental priorities and problems

Stage 3 - SO Environmental Issues Review. Each SO team uses the information gathered in Stages 1 and 2 above to conduct a SO specific environmental issues review. This review would not substitute the Initial Environmental Examination, which comes later.

SEP Outcome: Identification of environmental concerns and potentials specific to the SO possibilities and with a view to improving SO selection and orientation.

Stage 4 – SO Development Hypothesis. The team applies the results of the reviews to the elaboration of the SO development hypothesis, strategy, and critical assumptions; linkages with other mission SOs are examined.

SEP Outcome: Identification of proactive environmental objective or IR, within SO or through linkages with other SOs, identification of needs for IEE or PEA or EMEMP, determination of desirability of supplementary environmental analyses to clarify uncertainties or choices,

Stage 5 - SO Performance Monitoring Plan (PMP) SO team develops a PMP with indicators for the SO Results Framework (RF) and critical assumptions and incorporates appropriate indicators and plans for monitoring environmental issues identified and planned during Stages 3 and 4. Resources are budgeted.

SEP Outcome: Environmental indicators that are logically consistent with the strategic objective, the expected activities and the foregoing analyses. Monitoring plan that is feasible. Resource estimates that are adequate for monitoring.

1. Stage 1 – Mission-wide Strategic Problem Analysis, Trend Analysis and Assessments

At this initial stage of CSP development missions are conducting more "global" or "country" level trend analyses and assessments and identifying problems and opportunities. We have identified below the following types of required analysis, as well as those not required but frequently undertaken by missions for the development of a new CSP.

Required Assessments and Analysis for CSPs

- Conflict Vulnerability Assessment
- Environmental Analysis – environmental trends, state of the environment, nationally and regionally.
- Environmental Threats and Opportunities Assessment (see text box on following page for an example of how an ETOA can be used)
- Customer Service Plan and Preliminary Identification of Customers
- Sector-specific Analysis – updated information and analysis relevant to the articulation and development of Mission strategic objectives, assessment of host country, donor, and NGO involvement in the sector.

Frequently Conducted CSP Level Mission-Wide Analyses

- **Economic Analysis** – macroeconomic trends, state of the economy, nationally and regionally, poverty levels, employment statistics, informal sector analysis, etc.
- **Political Analysis** – political trends, current political situation nationally and regionally, state of democracy, civil society, and rule of law
- **Quality of Life Analysis** – biohealth statistics, HIV/AIDS prevalence and trend analysis, population statistics
- **Population characteristics and trends** - immigration and migration rates, refugee and other vulnerable populations, educational levels and literacy rates, proportion of population living under poverty line

A mission-wide Environmental Threats and Opportunities Assessment (ETOA) conducted during the first stage of the planning process for a new CSP can contribute immeasurably to ensuring that SO teams covering all sectors have important environmental information to employ when developing a new SO.

REDSO/ESA conducted a comprehensive ETOA in May 2000. The assessment included three interrelated activities: 1) a review and compilation of information on environmental threats and opportunities relevant to specific country situations in the ESA region; 2) an environmental review of proposed REDSO/ESA strategy components to identify critical factors/linkages, transboundary issues, and areas of opportunity in both environmental and other programmatic areas; and 3) an identification of proactive means to capitalize on environmental programming opportunities based on issues arising from the review process. The results of the REDSO/ESA will be used to ensure that REDSO/ESA and bilateral mission programs in the ESA region will be in compliance with relevant environmental laws and regulations, but also to ensure the environmental sustainability of these programs.

"The ETOA process is a priority-setting framework that provides a flexible approach to evaluating environmental issues and their relevance to USAID's Agency-wide strategic environmental goals. The priority-setting process includes three steps: 1) assessment of the severity of environmental problems; 2) evaluation of the potential effectiveness of strategies to address these problems; and 3) identification of opportunities for sustainable impact. This process is intended to lead to both creation of "environmental" strategic objectives (SOs) and to identification of opportunities to address environmental issues under SOs in other sectors (Moore, D and Knausenberger, W., May 2000, USAID/REDSO/ESA Strategic Environmental Threats and Opportunities Assessment with Special Focus on Biological Diversity and Tropical Forestry, prepared by USAID/REDSO/ESA, Nairobi, Kenya)."

Cartographic analysis is less frequently used, but now is more feasible than every for CSP planning

Maps can be enormously helpful in understanding the pressures that are being exerted on environments and natural resources. For instance, many existing CSPs cite poverty and population as driving causes of land degradation and deforestation. Without maps locating these pressures and their severity, strategies to deal with them are truly handicapped.

Mapping threats to natural ecosystems in Madagascar

In Madagascar cartographic analysis facilitated by GIS has been part and parcel of USAID supported eco-planning of priority forest conservation zones. Geo-referenced data on population densities, nutrition indices, per capita food production, and education levels are displayed on maps that also show deforestation fronts or park areas. By showing the spatial coincidence of these patterns it is easy to see and map areas that are most directly and immediately threatened by populations most in need. Such analyses have lead to a review of how poverty reduction and environmental protection must be coordinated in highly vulnerable zones.

We want to stress the importance of using cartographic analysis to strengthen Conflict

Vulnerability Assessments, Environmental Threats and Opportunities Assessments, the identification of customers and Customer Service Plans, poverty analysis, and sector assessment updates during this first stage of CSP development. The use of maps and analysis of cartographic data can provide both readily observable, and early indication, of environmental issues associated with the location and condition of natural resources in relationship to population settlements, population movement, economic activity, and potential and actual conflict areas.

1.1 SEP Outcomes, Stage 1

- Definition of national environmental priorities and areas of concern

- Maps
  - National level maps illustrating resources: soils, water, parks and other protected areas, population densities.
  - Environmental threats and problems maps identifying zones with various problems: accelerating degradation, deforestation fronts, soil salinization, refugee influxes or concentrations, endangered species.

Examples of Threats to the Environment

Accelerated clearing and/or cultivation of fragile areas with crops and techniques that are inappropriate, causing loss of natural productivity or permanent damage (irreversible soil loss, laterization). This is the kind of threat that could be posed by introduction of a new cash crop (e.g. cassava for chips) or removal of subsidies on agricultural inputs leading to extensification of production. **Outcome: Irreversible land degradation or loss of resilience to recover naturally.**

Incursions by armed combatants into forested areas, and killing of animals with modern weapons. Occupation and clearing of forested areas by combatants or Internally Displaced Persons (IDPs). **Outcome: destruction of fauna and loss of habitat.**

Prolonged drought causing the death or stunting of trees while at the same time fuelwood cutting and browsing continue unabated. **Outcome: desertification.**

Overly intensive cultivation of soils resulting in degradation of structure (e.g. laterization) and chemical properties (e.g. acidification due to excessive use of nitrogenous fertilizers) **Outcome: decline in soil fertility.**

Destruction of vegetative cover in catchments leading to siltation of downstream waterways, and irrigation systems. **Outcome: greater damage from flood peaks and continuing damage to irrigation systems.**

Occupation of fragile environments by large numbers of refugees or IDPs. **Outcome: loss of resilience, permanent degradation.**

Excessive and/or careless use of pesticides**. Outcome: contamination of surface and groundwater and health problems among field workers.**

Overstocking or inappropriate stocking of rangelands**. Outcome: irreversible decline in carrying capacity and resilience.**

2. Stage 2 – SO Team Sector Assessment Update, Information Gathering and Review

At this stage, SO team participants are conducting sector assessment updates, gathering relevant information from the more global country level analyses, and identifying potential new or additional partners, and conducting SO-specific customer surveys. It is at this point, that teams are also reviewing alternative foci for SO development as the results of these assessments become available.

2.1 Environmental/Natural Resource Management Strategic Objectives

The ENV/NRM SO team conducts special assessments as deemed necessary to update their knowledge. Examples include studies of completed or on-going environment/natural resources management and studies of the current status of natural resources in locations initially targeted for the SO program. In addition, vulnerability assessments conducted by FEWS or UNHCR, for example, are also relevant. This information should be used to answer the following preliminary questions:

- What are the environmentally vulnerable areas in the country, and what are the trends and threats?
- Are environmentally critical or priority areas being targeted for attention in this SO (see text box below describing the need for targeting critical areas within an SO program)?

Biodiversity Threats Assessed – An Example from USAID/UGANDA

For its 97-01 CSP the USAID mission in Uganda commissioned a special Threats Assessment. It was carried out by the Makerere University Institute of Environment and Natural Resource. Threats were assessed and prioritized. Root causes of the threats were identified: weak legal and institutional base, subsistence population pressures on natural ecosystems, and low public awareness of environmental problems and their causes. Priority zones for environmental action were identified: the Rwenzori mountains, the Mt. Elgon area and the Lake Victoria Basin. It is interesting to note, however, that these geographic priority zones are not specifically mentioned in the S.O hypothesis or action, although the performance data matrix notes specific locations that fall within two of these zones (Rwenzori and Lake Victoria)

Future CSPs that undertake biodiversity threats assessment should include maps in the CSPs that illustrate the threats and threatened zones, and locate areas or points where the CSP expects the S.O. activities to be carried out.

2.2 Strategic Objectives in Other Sectors (Non-Environmental)

Private enterprise, health, education, democracy and governance, and food security

(Special Objectives (SPOs) supported by Title II) sectors are included.

The SO team identifies and examines the ecological and/or natural resources aspects of the SO's sector, and of the activities that are typical or ongoing. This can be assisted where appropriate with GIS-generated maps, remotely sensed land cover changes, and existing national studies and plans, e.g., EAPs, NEAPs, GEF related studies, and special consultations, round table, or workshops on specific topics.

The following strategic questions are relevant:

- Are activities within this sector directly dependent upon natural resources or ecological processes? e.g. food security

- Might ecological processes or natural resource management indirectly come into play in this SO? e.g. ecological parameters of disease vectors, expectation of organic wastes related to a process such as agricultural product processing.

- For SPOs dealing with food security and Title II funding, will or are the target areas and populations coincident with degraded areas, areas near parks or other strategically important environments?

GIS and remotes sensing assistance to Title II program partners

USAIDs could consider providing GIS and remote sensing analytical support to PVO partners working on Title II programs. Where NPA is used, USAIDs could consider a dialog for encouraging/improving host government support in Title II target areas for research, extension or other action that would complement food for work actions aimed at restoring agricultural resources.

2.3 Determination of Customer Group

The SO team conducts field surveys and/or desk studies to identify target population groups, and consults on their needs, desires, and their use of and access to, environmental resources. Demographic statistics and analyses also provide relevant and important data resources. The following strategic questions should be posed if appropriate to the SO:

- Where is the target population/customer group located and what are its characteristics?
- What are the demographic characteristics of the target populations/customer group?
- What is the man/arable land ratio and the food production/capita?
- Do customers live in the regions or depend on the environmental resources?
- What issues can customers identify relative to use and access to these resources?

2.4 Identification of Appropriate Opportunities

The SO team reviews and examines potential approaches and technologies that are related to environmental sustainability and impact prevention or mitigation using USAID and other donor checklists, previous EIAs, and "lessons learned" studies. The following questions should be asked.

- Have the approaches/technologies been tested or evaluated?
- Have they been tested in conditions comparable to those of the identified region and customer base?
- Are feasibility or pre-feasibility assessments needed?

2.5 SEP Outcomes, Stage 2

- Definition of SO or sectoral environmental priorities and problems
- Illustrative and analytical maps specific to the SO
- A list of potential green technology or management possibilities for the SO's sector that could be relevant to SO articulation.

3. Stage 3 - SO Team Conducts a SO Specific Environmental Issues Review

This is not an Initial Environmental Examination as required by Reg. 216, since specific activities to be examined have not yet been identified. The purpose of the environmental issues review at this point is to orient the selection of a SO from among alternatives through a preliminary review of the related environmental issues. These may be identified in a generic way, i.e. related to a particular technology alternative, or in terms of information generated in earlier stages that would help select among alternative locations or target populations.

In this stage, we recommend that SO teams become environmentally proactive by incorporating relevant environmental information into their strategic planning process.

Having completed Stages 1 and 2, each SO team should examine the environmental issues that are specific to the sector, to the draft SO, and to ongoing activities related to the SO, if any.

Once the team has decided on what their basic SO is (exact wording and details do not need to be hammered down) and where the major loci of activity implementation will be in the country, the environmental issues review will serve to flag early on the problems or opportunities that will affect the SO in general. The review can serve to call attention to environmental aspects that could influence the way the SO is specifically articulated – or

chosen if there are several options. The review also marks the beginning of attention with a proactive mindset to the issues raised (see the textbox on the following page for an example).

SO teams can use checklists of potential impacts and the information already gathered to identify environmental issues and potential environmental impacts for activities and strategies that are typical for SOs in their sector in Africa. Checklists of potential impacts, such as those in the World Bank's Environmental Assessment Sourcebook can be referred to.

ENV/NRM SOs will probably require IEEs and Environmental Assessments and at this stage, decisions should be made as to the best approach. Alternative strategies for attaining the SO objectives should be reviewed and synergies or coordination with other SOs should be explored.

For other SOs that could result in adverse impacts associated with a particular activity or set of activities, the team should examine alternatives in terms of the environmental issues that are raised. There are usually several alternatives for production, processing, management, or location of activities. The issues and possible impacts of each should be considered and recorded in a matrix to facilitate comparison.

There are several sourcebooks with checklists that SO teams can use to help identify potential impacts from various strategies and activities, especially the World Bank Environmental Assessment Sourcebook. In addition, the team can invite a member of the NRM/ENV SO team and/or the Mission MEO to attend. Alternatively or in addition, the team could invite a knowledgeable staff person from a local or US Environmental NGO or researcher/instructor from a local university.

In order to deepen the appreciation and critical importance of environmental issues among the SO team's likely host country counterparts for the SO program, invite them to attend and participate in the review of alternatives.

Following the identification of environmental issues related to preliminary ideas for SO strategies and activities, the following questions should be used to guide the SO team to select the best alternative:

- Are the environmental issues and potential environmental impacts of the alternatives quantifiable? Comparable?
- For non-ENV/NRM SOs, is there an alternative strategy or set of activities that would generate synergy with other USAID SOs, or with other sectors and donors?
- Which of the alternative strategies enhance environmental values? Which could have the least or no negative environmental impacts? Will that strategy support the strategic objective well? What are the trade-offs? Can they be minimized to enhance results?

3.1 SEP Planning Outcome, Stage 3

- Identification of environmental concerns and potentials specific to the SO
- List of potential or generic environmental issues
- List of potential "green' solutions
- Matrix comparing alternatives
- Selection of the SO alternative that is superior to others from an environmental standpoint as well as other measures.

Proactive Planning Versus Reactive Remedies in IR Planning

Resource conservation v. impact mitigation. In Refugee Resettlement.

Provide transportation for resettlement of Internally Displaced Refugees that will allow them to salvage poles and other building materials from their homes at the refugee camp for later use in rebuilding...thus preventing cutting of poles at their destination. This proactive stance, "conservation of resources", helps minimize a problem that the reactive impact assessment stance would identify as 'preventing deforestation.". Similarly, provide assistance for re-building of schools, clinics and other public structures using local materials combined with energy-efficient designs to moderate extremes of heat and cold, conserve resources and allow for local maintenance.

Wastes as resources *v.* pollution control In agro-industries. Make conversion of potentially polluting wastes into useful products, such as animal feed, compost, or briquettes, integral to the processing design and explicit in the IR.

Proactive planning initially places the burden of knowing environmentally sound solutions on the S.O. planner, but local or regional expertise could provide ideas. For instance, as part of the CSP exercise or as an activity leading up to it, USAID could sponsor round tables or local conferences of "green' solutions in agricultural product processing. For facilities such as health care posts, schools and tourist housing near parks "green" solutions through design and materials and in water supply and sewage handling could be vetted.

4. Stage 4 – Applying the Results of the Reviews to the Development of the SO Development Hypothesis, Strategy, and Critical Assumptions.

This stage includes several CSP planning steps:

1) Articulation of the Development Hypothesis,

2) Development of a Detailed Results Framework
3) Clarification of Critical Assumptions and Illustrative Activities for Each I.R.
4) Clarification of Participation Requirements
5) Search for environmental linkages with other SOs

During this stage, SO teams will be using all the information they have gathered and analyzed to articulate their SO development hypothesis and overall strategy, developing the first draft of a SO results framework, and identifying critical assumptions. A preliminary budget is drawn up for the SO. While going through the different steps of this SEP stage, the SO team should apply the results of the environmental issues review (Stage 3). Environmental linkages with other SOs should be searched.

We have broken down these activities into the five steps listed above.

4.1. Step 1: Articulating the Development Hypothesis

Develop a chart with the outcomes of the Environmental Issues Review to hang on the wall or an easel for the SO team to refer to as they articulate the development hypothesis. This information should be used along with the sector specific information that has been gathered for use in developing the SO program. The SO team should make explicit the hypothetical cause/effect relationships among policy, programs, actions, and effects of actions on the relevant natural resources and environments. The SO team should ask themselves the following questions:

- Does the hypothesis make assumptions about environmental resources availability, productivity, access to resources and current levels of use, ecological conditions, resilience and/or response to management?
- Does the hypothesis make assumptions about the impact of the strategy on environmental resources and ecological conditions?
- Does the Environmental Issues Review embody the development hypothesis in the results framework invalidated?

4.2 Step 2 - Developing a Detailed Results Framework

The team should use the results of the Environmental Issues review (Stage 3) to guide the development of a detailed results framework, and, as the IRs are defined, examine the issues of each. The team should then consider the ecological processes and natural resources that will support each level of results in the framework, and consider the effect of environmental impacts on the desired results for each I.R. and sub-I.R.

The team should ask the following questions:

- What linkages highlighted by the environmental issues could cause either environmental threats or opportunities for each of the IRs and in the effect of

the IRs on the SO?

- What activities are foreseen in support of each IR and what might be their environmental implications?
- Will issues highlighted by the review cause aspects of the program to fail or perform below expectation?
- Can expected environmental problems be converted into proactive opportunities?
- Is it expected that the activities identified to achieve the result will require an environmental assessment (for affects on, for example, water use, tropical forests, biodiversity, human health)?
- Will monitoring to determine environmental changes, including the establishment of baseline status be required?

Following this review, consider the wider geographic of the SO and IRs by revisiting the NEAP review, the Environmental Analysis and the ETOA, and the overlaps with other SOs. Determine if there are additional factors that are relevant to the proposed I.R.s and the likely activities and strategies that will be used to achieve those results.

4.3 Step 3 – Clarification of Critical Assumptions for the Success of the SO Program, Ultimate Customers, and Illustrative Activities for Each I.R.

Once the SO team completes the identification of critical assumptions, ultimate customers for the program, and fleshes out illustrative activities for each I.R., it should scrutinize each I.R. in terms of

√ the environmental implications of critical assumption required to achieve each I.R.; and

√ the specific environment and natural resources issues, opportunities, or concerns associated with the illustrative activities.

The SO team can be guided by the following questions:

- In NRM and related agricultural production, is there sufficient antecedent work or study to be assured of the expected results, e.g., in changes in productivity, yields, growth rates, etc.?

- Have “green” technologies been considered, e.g. renewable energy technologies, water conservation/recycling, etc.?

- Is the geographic and technical scope of the specific actions consistent with

the earlier environment trend analysis and environmental assessment of the SO? If not, how does this affect the rationale for the strategic objective?

- Are other donors with whom USAID is coordinating or relying upon for the achievement of this SO aware of the identified environmental issues and opportunities?

These reviews and analytical work may highlight the need for some adjustments to the program design. Potential reasons for adjustment include problems with the location of activities under the program because of the status or location of vulnerable and/or critical resources; problems with planned methods for managing required environmental resources; likely conflicts over environmental resources required by the program; etc.

4.4 Step 4 – Clarification of Participation Requirements

At this point, SO teams are identifying and exploring potential host country partners in the public and private sectors and citizen groups for implementing the SO program strategy. There are several factors that are relevant to these choices to ensure positive environmental outcomes from the program. These include:

- The capacity of government agencies to guide/facilitate the management of environment and natural resource management issues

- The conflicting demands of other donors on capable local environmental professionals in either government agencies, universities, or local private firms

- The role of community and individual participation in planning and implementing actions that manage or exploit environmental resources.

Several SEP questions should guide the assessment of these factors:

- Do identified counterparts in host country ministries and other in-country organizations (private or public) have sufficient ENV/NRM skills, experience and knowledge to take manage the environmental issues and factors that have been identified?
- Do institutional assessments indicate that training will be necessary? Or will specific assessments be needed to ascertain current levels of awareness, skills and knowledge of environmental issues?
- Are there good communication lines and information sharing among the entities and individuals who will be involved in program implementation?
- Does existing research indicate natural resource allocation and/or access issues and conflicts both within and among communities that may be

involved?

If the choice of implementing partners is constrained or limited by the host country government or prior USAID mission program history, can appropriate ENV/NRM awareness and skills training be provided as appropriate?

4.5 Step 5 - Check the SO Framework for Possibilities to Link with Other SO Programs

Proactive strategic environmental planning also requires that mission SO teams think outside of their sector to determine what kind of supportive linkages can be developed with other SO programs in the Mission (see text box below for a brief example of the need for active planning for synergies). Increasingly, missions are forging meaningful linkages between SO programs to achieve greater synergies in the mission overall program. Not only do these linkages help missions to reach their overall programmatic goal and support Agency goals, but they also increase the soundness of development practice.

Synergies are active not serendipitous

To exploit the possibility of synergies between SOs, linkages should be actively pursued, and the results of actions need to be measurably re-enforcing.

Geographic coincidence of two SO actions do not automatically result in synergies or mutual re-enforcement of the SOs. For example, the existence of a family planning program and health education in a region with deforestation cannot logically help an ENV/NRM SO that is seeking to stop deforestation, given the different time horizons of the two SOs. – long term for family planning results and short term or tactical for prevention of deforestation.

The following questions should be used to guide this process:

- What opportunities are present to strengthen environmental conservation in the proposed SO program through deliberate linkages with other SO program activities? Examples include:

  √ adding environmental education to **basic education** programs;
  √ conducting **environmental awareness programs** that cross-cut sectors, SOs and customer groups
  √ including environmental resource valuation in development planning for **economic growth**;
  √ combining environmental conservation work with **civil society** development through community-based natural resource programs (see an example from Tanzania in the textbox on the following page);
  √ developing **conflict prevention or mitigation** activities over resource

access issues between communities or tribes
- √ adding environmental health issues to **preventative health** programs
- √ identifying environmentally friendly technologies for **energy** sector programs
- √ adding natural resource management and conservation practices to **commercial export agriculture** programs
- √ addressing environmental resource issues in **food security** programs

- Which I.R.s in the SO program (or specific activities supporting the I.R.) can be employed to support aspects of other SO programs in the mission?

- In addition, are there similar kinds of linkages that can be developed:

  - between this SO program and other donor development programs?
  - between this SO program and local, national, or regional environmental programs?

- What are the likely environmental outcomes from forging these linkages between programs?

- What will these linkages mean in terms of resource allocation and staff time?

Strengthened Civil Society Among Masaii Tribal Communities Through Community Based Planning for Natural Resource Management
USAID/Tanzania

USAID/Tanzania made a deliberate choice to strengthen civil society organizations through the design and implementation of all of its SO programs. The Mission's SO 2 program supports capacity strengthening of local institutions to foster conservation and resource management of Tanzania's outstanding wildlife and coastal resources by working with local people who interact and use those resources. One of these organizations, the Maasai Advancement Association (MAA), has played an important role in this work through assisting Maasai villages to develop and implement natural resource management programs in tribal areas adjacent to Tarangire and Lake Manyara National Parks. Because of recent policy breakthroughs that permit decentralization of natural resource planning and management as well as community input to Wildlife Management Area plans, villagers are now encouraged to participate and contribute to the development of plans to ensure sustainable use of wildlife resources important to their survival, and to increase the stability and health of those wildlife populations and the habitats they rely on. MAA's assistance in this process also includes explaining the Wildlife Management Area concept to Maasai villagers, and ensuring broad, representative village participation in planning. Although it is too early in the program to have realized measurable improvements in wildlife population and habitats, the Maasai themselves have already gained immeasurable benefits through these important local empowerment activities.

SEP Outcomes – Step 5

- Identification of a proactive environmental objective or IR within the SO or through linkages with other SOs (see example in text box below)
- Identification of linkages that could be forged between the SO and other development programs and/or local, national, or regional environmental programs
- Identification of needs for IEE or PEA or EMEMP
- Determination of desirability of supplementary environmental analysis to clarify uncertainties or choices
- Composite map showing target areas or populations or all SOs

IDENTIFICATION OF A PROACTIVE ENVIRONMENTAL STRATEGIC OBJECTIVE
USAID/Namibia

In their recent **Conflict Vulnerability Assessment, USAID/Namibia** cites environmental degradation and unresolved land issues as one of the set of key internal conditions that contribute towards the marginalization and impoverishment of the rural population. Their analysis concludes that condition of the rural populace could well contribute to further social destabilization in the country at a time when Namibia is already in a situation of currently occurring conflict. The assessment cites the following factors that underlie Namibia's environmental problems:

- A very high population growth rate (3%)
- An extremely fragile ecosystem
- The concentration of 60% of the population in the northernmost parts of the country (where agricultural subsistence farming is possible), leading to population pressure on communal lands (human and animal)
- Overgrazing
- Lack of easily accessible potable water
- Deforestation
- Lack of affordable, appropriate technology to supply community energy needs
- Lack of skills and resources to develop a wider range of agricultural products
- Limited access to markets, in the light of stalled, politically sensitive legislation on land tenure in the communal areas, continued concentration of authority in the person of the chief as regards land disbursement/control and continued illegal fencing by economically and/or politically individuals.

The Mission's SO 3 program, **"Increased Benefits Received by Historically Disadvantaged Namibians from Sustainable Local Management of Natural Resources,"** was designed by staff and their partners to specifically address some of these issues listed above. The activities associated with this SO are located in the northern part of the country where the combined stresses of poverty, environmental problems, historical lack of local control and current conflict are most keenly felt. SO activities combine local civil society development, conservation practices, institutional capacity building and national policy work to increase the income of residents in this region of the country while at the same time conserving critical environmental resources and addressing other natural resource management problems. Although these issues were previously identified and analyzed prior to the Conflict Vulnerability Assessment for use in planning this highly regarded SO program, their recent highlighting in the mission-wide conflict vulnerability assessment serves to maintain the focus of strategic planning on activities that address these crucial problems in Namibia.

5. Stage 5 - Developing a Performance Monitoring Plan that Includes Environmental and Natural Resource Indicator Monitoring

At this point in the CSP process, the SO team develops a performance monitoring plan (PMP) with indicators for the SO results framework and critical assumptions. The team elucidates methods for establishing baseline for each indicator, collecting data, data sources, and the timing of data collection. Resources are budgeted for data collection and analysis.

For the SEP planning in the stage, the SO team should identify appropriate environmental and natural resource management questions to include in the PMP. The team will need to identify appropriate baseline studies for these indicators, or if not available, begin making plans to collect baseline data. If suitable indicators are chosen, they should provide an early warning of possible or actual results that may lead to environmental degradation or environmental problems during the program monitoring process. This information can be fed back into SO management in time for curtailing those program activities that are seen to lead to these environmental problems. The following questions should guide the team through this stage:

- Using the information from Stage 4, what aspects of the SO and IR relationships relevant to identified environmental issues should be monitored?
- What are appropriate indicators for monitoring the ENV/NRM aspects of the results framework that were identified in Stage 4? (See textbox below for a guide to resources that can help your SO team.)
- What are appropriate indicators for monitoring the ENV/NRM aspects of critical assumptions that were identified in Stage 4?
- What are the most cost-effective and appropriate means to monitor the identified indicators? Are there existing data sources that can be used? Would it be useful to start baseline studies (if baseline information is not available) before the activities are contracted?
- Can synergies or coordination with data collection and monitoring work supported by other SO teams or other donors be achieved?
- Can remote sensing and GIS be used to advantage for the collection of environmental data?

Coherence between Performance Indicators and Intermediate Results

There are a wide range of actions ("results") that could potentially contribute to an SO and an equally large number of indicators that could signal movement towards a result. The USAID program will obviously select only those results and indicators that conform to its strategy and to its underlying logic.

In reviewing a large number of CSPs the authors noted an important gap in the presentation of performance indicators. In many CSPs the indicators were not "defended" or described in the text. Their mention was limited to a brief few words in the Performance Data matrix or equivalent table. This leaves many important questions unanswered such as,

- what is the specific working hypothesis behind the selection of the indicator,
- what is the environmental effect of the action that is revealed by the indicator, and
- how does that effect relate to the SO?

The selection of an indicator foresees the results of specific actions not yet planned and attaches an important element of causality between the indicator and the IR. Future CSPs should present more extensive descriptions of indicators and their significance.

At this point, the cost of environmental assessments and needed baseline, monitoring, and evaluation related to the environmental aspects of the SO need to be added to the total cost for the execution of the SO PMP. (If the SO in question is an ENV/NRM SO, the entire PMP costs need development.) Additionally, costs must be assigned to any environmental mitigation and management, or of EMEMP, if such activities are expected. The following questions can guide the SO team to calculating these costs:

- Will an EMEMP or similar environmental impact management plan be required?
- Are there local capabilities to undertake environmental assessments, baseline studies, or indicator measurement?
- Will remote sensing images have to be bought and analyzed?
- Can needed GIS capacity be installed and managed locally?
- Do Global or Africa Bureau programs exist which can support needed assessments and studies?

5.2 SEP Outcomes, Stage 5

- Environmental indicators that are logically consistent with the strategic objective, the expected activities and the foregoing analyses.

- A feasible monitoring plan that includes necessary resources.

Resources for Identification of Appropriate Indicators

SO teams in sectors other than environment and natural resource management will need some assistance in order to monitor environmental issues identified during the development of their strategy and results frameworks. The following list includes some excellent sources to consult for generating ideas and choosing appropriate indicators suitable for your program. Your friendly MEO or REO can help you to access these materials and guide you through them. Remember to choose indicators that are practical, reliable, cost-effective, and useful for management purposes. Refer to CDIE TIPS No. 6, Selecting Performance Indicators.

Booth, Greg. 1993. Biodiversity Impact Indicators within a Natural Resources Management Framework for sub Saharan Africa. Washington, DC. USAID.

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Marks, Malcolm K., 1996. Monitoring and Evaluation Toolkit. Prepared for USAID/Niger through the Agricultural Sector Development Grant. International Resources Group, Washington, DC.

OECD. 1997. Environmental Indicators for Agriculture. OECD, Paris, France.

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Weber, Fred. 1990. Preliminary Indicators for Monitoring Changes in the Natural Resources Base. USAID Program Design Evaluation Methodology No. 14. Washington, DC. USAID.

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World Bank, 1999. Environmental Indicators. On the Environmental Economics and Indicators website. www.esd.wordbank.org/eei

Table 1. Making the Environmental Dimension Explicit in CSP Development

Stage 1 – Mission-wide strategic problem analysis, trend analysis and assessments			
CSP Planning Stages and Steps	**Environmental Dimension**	**Strategic Questions**	**Information, resources**
Design and agreement on the strategic planning process	Possible engagement of environmental ministry or environmental units in line ministries; host country university with environmental programs; USAID/G or USAID/Africa Bureau/SD, other donors, UN agencies.	Who should be involved to ensure that environmental resource and conservation issues and factors are considered in all SOs during the initial strategic planning process? How will the CSP planning engage host country officeials and citizens? Should special surveys or assessment be done to prepare the ground for planning. Is the host government undertaking strategic planning? Are there new issues, unforeseen in the last CSP, that should be addressed?	Mission Environmental Officer (MEO) and other staff. Lists of ENV/NRM experts (and contact info) in USAID/AFR/SD, USAID/G//ENV, REDSO/ESA, in relevant host country ministries, local universities, and in NGOs and other donors.
General or sector specific assessments	Environmental analysis (as per requirements of Sections 118 and 119) Environmental Threats and Opportunities Assessments	What is the nature and geographic pattern of agricultural lands, forests, parks, biodiverse areas and inhabited environmentls? What are the trends, needs, and broad issues affecting these areas and resources? What are the opportunities for USAID responses to needs?	Satellite images, overflights., aerial videography or photography.

Stage 2 – SO team sector assessment update, information gathering and review from Stage 1			
CSP Planning Stages and Steps	**Environmental Dimension**	**Strategic Questions**	**Information, resources**
Strategic problem analysis, trend analysis and assessments	For Environment/NRM SOs: .Special assessments as deemed necessary, e.g. of completed or on going environment/natural resources management activities, of critical or vulnerable areas. For non ENV/NRM S0s. Examination of the ecological and or natural resources aspects of the S0's sector and of the activities that are typical or on-going.. .	Where are the vulnerable areas and what are the trends and threats?. .Are environmentally critical or priority areas being targeted for attention in this SO? For non ENV/NRM S0s: Are activiites within this sector dependent upon natural resources or ecological processes? Might ecological processes or natutal resource management come into play in this S0? For example, human disease vector ecology; content of school cirriculum, resource-conserving design solutions for clinics or schools.	Vulnerability assessments by FEWS(http://www.usaid.gov/fews/) and partners, UNHCR,others. Special USAID-commissioned surveys preparatory to the CSP planning exercise Remotely sensed landcover changes; special surveys or assessments by others. Existing national studies, e.g. EAPs, NEAPs, GEF related studies,. UN family surveys
Determination of the customer group(s)	Desk study and/or field survey to identify target population/groups and consult on their needs, desires, and their use of, access to, environmental resources.	What are the demographic characteristics of the target populations? What is the man/arable land ratio? Do the customers live in the regions or depend on the environmental resources identified in previous step? Would a survey be needed to answer the question? What issues can customers identify relative to use and access to these resources? Are there informants who can report on the status of those resources?	USAID customer Survey results, desk study results, Demographic statistics and analyses.
Identification of appropriate opportunities	Review and examination of potentials, approaches, technologies, etc.that are related to environmental sustainability and impact prevention.or mitigation.	Have the approaches/technologies been tested or evaluated? In conditions comparable to those of the identified region and customer base? Would feasibility or pre-feasibility assessments be needed?	USAID and other donor evaluations/"lessons learned" studies. Reviews of grey and published literature.

Stage 3 - Environmental Issues Review.			
CSP Planning Stages and Steps	**Environmental Dimension**	**Strategic Questions**	**Information, resources**
Consideration of strategic alternatives and .... Selection of the SO	Identification of environmental issues and potential env. iimpacts for activities typical of the SO Identification of potential « green » solutions to expected impacts. Weighing environmental impacts or outcomes of alternative strategies, both + and -. Ranking of environmental outcomes of alternative strategies.	Are the environmental issues and potential environmental impacts of the alternatives quantifiable? Comparable? For non-Env/NRM S0s, is there an alternative that would generate synergy with other USAID S0s, or with other sectors/donors? Which of the alternative strategies enhance environmental values and/or have the least or no negative environmental impacts? Will that strategy support the strategic objective well? What are the trade-offs? Can they be minimized to enhance results?	For potential impacts: Checklists (World Bank Environmental Assessment Sourcebook) Consult with Mission Environmental Officer, and/or a locally identified expert.
Stage 4 – SO development hypothesis SO team applies the results of the reviews to initial development			
Articulation of the development hypothesis	Make explicit the hypothetical cause/effect relationships among policy, programs, actions, effects of actions on the relevant natural resources, and environments.	Does the hypothesis make assumptions about environmental resources productivity, ecological conditions, resilience and/or response to management? About impacts? If so can these be articulated within the hypothesis? Does the hypothesis account for the environmental issues and impacts that have been identified?	**see above**

Stage 4 – Continued			
CSP Planning Stages and Steps	**Environmental Dimension**	**Strategic Questions**	**Information, resources**
Clarification of participation requirements	Capacity of government agencies to guide/facilitate env/NRM management. Conflicing demands of other donors on institutions/capable local environmental professionals. The role of community and individual participation in planning and implementing actions which manage or exploit environmental resources.	Do identified counterparts in host country ministries and other in-country organizations have ENV/NRM skills/experience/knowledge to take into account ENV/NRM issues and factors? Will training be necessary? Are there good communication lines and information sharing among the entities and individuals who would be involved?	Existing research and field surveys by anthropologists/sociologists, geographers, or government agencies. Institutional capacity assessments.
Development of a detailed Results Framework	Consideration of the ecological processes and natural resources that will support attainment of a result Consideration of the effect of environmental impacts on the desired result. Exploration of results that would correspond to proactive environmental activities	Are the expected results consistent in nature, importance, space and time with the earlier assumptions and/or development hypothesis? Is it expected that the action will require an environmental assessment (affects water use, tropical forests, biodiversity, human health)? Will monitoring to determine changes from a baseline status be done?	Potential Impacts: World Bank Environmental Assessment checklist
Clarification of the critical assumptions, ultimate customers, and illustrative activities for each IR	Scrutiny of specific environment and natural resources issues, opportunities, or concerns associated with the illustrative activities. Scrutiny of the environmental implications of critical assumptions required to achieve each IR.	Is there sufficient antecedent work or study to be assured of the expected results, e.g. in changes in productivity, yields, growth rates, etc. Have "green" technologies been considered, e.g. renewable energy technologies, water conservation/recycling. Is the geographic and technical scope of the specific actions consistent with the earlier environmental trend analysis/environmental assessment of the SO? If not how does this affect the rationale for the strategic objective? Are other donors USAID is coordinating with/ar relying on for this SO aware of the identified environmental issues/opportunities/concerned?	Mission or regional environmental officer or designated ENV/NRM expert. Partners for the SO from other donors and from host country institutions. Checklists e.g., World Bank Environmental Sourcebook, Environmental Guidelines for Small-Scale Activities in Africa, etc.)

Stage 5 - Development of Performance Monitoring Plan (PMP) and assignment of resources			
CSP Planning Stages and Steps	**Environmental Dimension**	**Strategic Questions**	**Information, resources**
Performance Monitoring Plan	Environmental and natural resource indicators to include in the PMP. Definition of environmental or natural resource base line studies that may be needed. Monitoring environmental and natural resource indicators at appropriate time intervals.	What are appropriate indicators for monitoring the ENV/NRM aspects of the Strategic Objective? What are the most cost-effective and appropriate means to monitor identified indicators? Would it be useful to start baseline studies before activities are contracted? Is an environmental sector assessment or programmatic environmental assessment(PEA) appropriate and if so should it begin now? Can synergies or coordination with data collection and monitoring work supported by other donors be achieved? Can remote sensing and GIS be used to advantage?	USAID environmental indicator lists, existing baseline studies, GIS data, etc. ENV/NRM expert, M&E expert Experts in geospatial data and use.
Resource requirements	Cost of environmental mitigation and management, or of EMEMP, if expected. Cost of environmental assessments and needed baseline, monitoring, and evaluation studies related to environmental aspects of activities.	Will an EMEMP or similar environmental impact management plan be required? Are there local capabilities to undertake environmental assessments, baseline studies, or indicator measurement? Will remote sensing images have to be bought and analyzed? Can needed GIS capacity be installed and managed locally? Do Global or Africa Bureau programs exist which can support needed assessments and studies?	Mission or regional environmental officer and/or designated alternative (see list of experts in step 1 above) to calculate resource costs and to help identify and resolve capacity issues.

III. TOOLS AND PROCESSES USEFUL TO SEP

A. Introduction

This section of the paper provides brief profiles of tools and processes that can be highly useful for strategic environmental planning. While we have not provided an exhaustive list, we have sought to identify some of the newest tools and approaches recently developed but not yet well known, as well as some of the tried and true techniques that deserve recognition and greater use in USAID strategic planning activities. This section includes:

- Profiles of geospatial data and tools
    - Profiles of tools useful for:
      SO hypothesis generation
      Environmental issues identification
      PMP development

Table 2, found at the end of this section, summarizes and lists the tools that could be useful at different points in the preparation of a CSP and SOs. The table reiterates the steps and environmental dimensions of CSP planning summarized in Table 1, and adds a column "Data gathering/analysis tools"

B. Geospatial Tools and Data

This section includes profiles of geospatial tools and data that can be used for strategic planning, the identification of environmental issues, and environmental indicators for monitoring in SO performance monitoring plans. The profiles include:

1. Satellite imagery
2. Digital Base maps (DCW and Geocover)
3. Land cover and deforestation mapping
4. Geospatial tools and applications of potential use to USAID CSP planning
5. Africa Data Sampler
6. Devecol/Africa
7. Alamanac Characterization Tool

1. Satellite imagery

Satellite imagery clearly reveals landforms, general land cover, drainage features and easily recognizable land uses (i.e. that has distinct spectral signals) such as irrigation areas, built up or urban areas, and areas of monoculture such as irrigated rice. With a

modicum of training USAID mission personnel could learn the software applications that are needed to work with the imagery and create interpretive maps or base maps. Also in

the near future, maps of land cover, derived from LandSat Thematic Mapper imagery will be available for all of Africa. Such maps will be extremely useful for strategic planning.

Imagery in Africa is being produced by a number of satellites, NASA's LandSat Thematic Mapper (30 meter resolution) the higher resolution French SPOT and the Indian IRS-1 For large regions LandSat imagery is the better choice. It has been taken of Africa since 1988 and reveals changes in land cover over the years.

Until recently satellite imagery has been expensive to acquire. In early 2000 Earth Satellite Corporation began to make available individual LandSat Thematic Mapper-multi spectral satellite images of Africa for $250 per scene on CD ROM with viewing software and a compression decompression application that allows the scenes to be easily zoomed and examined. In addition the scenes are geodetically rectified, making them the equivalent of a geometrically correct base map. Each scene is 170 kilometers on a side, reveals terrain features, river systems, land cover, settlements, and wide linear features such as improved roads or airports.

Maximum zoom of a rectified satellite image showing the airport south of Addis Ababa.

The low cost and relative ease of use of these rectified images offers an important and flexible mapping tool for USAID missions hitherto unavailable. Using GIS applications the scenes can be used as the base map framework for compiling information, e.g. a

priority catchment area or a region selected for community based natural resource management or for displaying other GIS layers such as administrative boundaries, named settlements and towns, health clinics, etc.

2. Digital Base Maps

Digital base maps are essential for displaying other geo-referenced data. Only two base maps are mentioned: the Digital Chart of the World and Geocover, a base map made from a satellite images. They are widely available in digital format and can be used by USAID missions.

For humanitarian crises, BHR's OFDA has access to more detailed, but classified base maps at the 1:250,000 larger, but unfortunately these are not available for USAID or its partners.

2.1 Digital Chart of the World (DCW)

The DCW base map of the world was produced in 1993-1995 by digitizing 1:1,000,000 scale Aeronautical Navigation Charts, of which there are 227. The scale is adequate for viewing entire countries or regions of large countries. The DCW contains all the information on the original hard copy charts. Each item of information is a database that is rendered graphically. Using a GIS application base maps can be 'built' by combining the different databases, e.g. of elevation contours, rivers, water bodies, roads, railroads, and populated places to mention a few of the layers.

Two custom applications, mentioned later, can be used by USAIDs to facilitate the use of the DCW: the Africa Data Sampler and DEVECOL/Africa.

2.2 Geocover – scalable base maps from satellite images. www.geocover.com

➢ >

The satellite image mosaics and individual rectified images being prepared by Earth Sat Corporation for NASA correspond to the best quality Land Sat Thematic Mapper imagery obtained between 1987 and 1993. Images selected were cloud free or as cloud free as possible, taken at peak growing season of the area covered. Africa is the first continent after North America to have been completed (see image example above).

The product is digital and does not require imagery analysis software to be viewed. It is scalable, i.e. zoom-able, which is to say you can use it at scales of from 1:1,000,000 or smaller to scales as large as 1:50,000. (Earth Satellite Corp does not recommend scales larger than 1:50,000). A newly available compression, decompression software (Mr SID) that comes with the imagery automatically "resamples" the pixels at different zooms to achieve this.

Colors. The colors correspond to a scheme that renders vegetation in shades of green, water in shades of blue or black, urban areas in shades of

magenta or purple, and bare soil or rock in greys, brown, and reds. Sands are white to golden.

Rectified. The mosaics and the individual images are geometrically rectified to reduce distortion. EarthSat Corp advertises them as "the most accurate,> commercially available base maps of the world" with better positional> accuracy than most of the world's 1:200,000 maps. However, they are not true> base maps in that populated places and other named places aren't named,> roads and railroads aren't displayed and classified, no contour lines or> spot elevations, etc. > Because they are rectified they can be combined, using GIS programs, with other digital layers such as roads, protected areas, or administrative boundaries, to create a base map or special map that displays georeferenced data that has been plotted using GPS units or Latitude and Longitude values.
>
The Digital Chart of the World layers for roads, populated places and rivers register fairly closely on the mosaics' corresponding features. Thus, the mosaic can be used to create base maps by adding and editing, where needed, these annotations and lines.

> Cost. One 5 degree by 6 degree mosaic is made from between 9 and 10 individual images (which measure approximately 170 km on a side). The cost per mosaic will be approximately $300.

Potential uses

1. **Compiling data.** Using a GIS program, the user can plot areas or points where USAID is supporting activities such as soil and water conservation, water shed management, forest management, natural areas management, crop production, etc. At the mission level these views would be most useful to managers, contractors and local counterparts for displaying and tracking/annotating activities on the ground, given that you can find yourself on the image.

2. **Orientation and communication.** Excellent presentation of terrain > features, (i.e. plains and valleys, plateaus, mountain sides), and terrain complexity (i.e. whether deeply dissected), drainage networks down to the smallest tributaries (great for watershed management planning and data presentation), general land cover for the period between 83-97, including areas with vegetation (grassy to forest)

3. **Image background and framework for base map annotations**. Towns and their > names, roads, contour lines, conservation areas, and other features from the Digital Chart of the World can be superimposed, i.e. laid over, the mosaic to produce a true base map. Names of smaller populated places can be added to create an area-specific base map, e.g. one to be used in a watershed management project or soil conservation/agricultural production project in multiple small villages.

3. Land Cover and Deforestation Mapping

A number of entities are engaged in preparing maps of Africa's landcover using LandSat TM imagery supplemented with imagery from other satellites –Two principal ones are Earth Satellite Corporation (land cover maps of the same imagery used for the Geocover project, mentioned above), and the Food and Agriculture Organization (the Africover program),

USAID has supported mapping of deforestation and other land cover change using satellite imagery from different years in numerous countries in Africa, including Madagascar, Senegal, West Africa Cote d'Ivoire, and Tanzania. Such studies have provided information that is indispensable for strategic planning of USAID supported efforts to arrest deforestation and protect critical zones.

Examples of such work are displayed on the Eros Data Center Web page: http://edcsnw3.cr.usgs.gov/ip/sahel/phototour/phototour.html

In countries with known deforestation "hot spots", CSP planning should consider commissioning an imagery-based analysis of deforestation patterns and other landcover changes to inform strategy development.

4. Special GIS applications prepared for USAID

The IGAD Regional Integrated Information System Project

In recognition of the ever-increasing role of information in, The Intergovernmental Agency on Development (IGAD) Members States and the IGAD Secretariat has undertaken to develop a Regional Integrated Information System (RIIS) for the Greater Horn of Africa. . The RIIS project is a jointly funded by the U. S. Agency for International Development and the Italian government.

The following is extracted from the project's web page (http://edcsnw3.cr.usgs.gov/ip/igad/regional/regional.html).

Initially the main objective of the RIIS is to enhance the sustainable production and dissemination of timely and reliable data and information for IGAD's priority areas of interest. Other themes will be added, based on stakeholders' needs. This demand-driven approach to the RIIS development pre-supposes that the potential user of RIIS information will be able to articulate and clearly specify their information demand and needs. The System is to be an Internet based, distributed network involving any interested private and public institutions at all levels from local to international.

The project is currently in its first phase that is to determine the feasibility of actually implementing the System. This is to be done by: assessing the data and information needs of all potential users, the abilities and capacities of data and information holders and

producers, by exploring and identifying options for informing stakeholders on informational holdings and the distribution of available materials, and by developing a blueprint for implementation of the System. This is to be accomplished by a series of activities including workshops, a needs/capacity assessment, and inputs from all interested parties and potential stakeholders.

When completed, RIIS hopefully will provide data access for a wide variety of users at various scales of interest for developing information for use by managers, decision-makers, and policy makers. RIIS will depend on developing linkages and relationships among interested data and information holders, users, and producers in the Member States and throughout the region.

5. Africa Data Sampler

This is a CD ROM, produced in 1995 by the World Resources Institute and PADCO that contains georeferenced data for every country in Africa. It holds base map layers of the Digital Chart of the World, protected areas, wetlands, and population. ArcView a free GIS viewing package available from ESRI, is required to view the layers. A tutorial is included to assist the user. Base maps displayed in DEVECOL/Africa, described below, were built using ADS datasets.

6. Almanac Characterization Tool (ACT)

This is a CD-ROM developed by Dr. John Corbett and colleagues at Texas A&M's Blackland Research Station, with initial support from USAID.

The CD holds data layers for base maps, soils, land cover, population, elevation and climate among others, for eight countries in Africa. It includes an application that maps zones according to various parameters from the above layers. Maps are rendered in raster format, of 1 km square pixels. ACT contains a browsing function that allows the user to view climate graphs for different points on a map surface, computed from a unique analytical application generates spatial extrapolation of climate station data. or each country a collection of documents in digital format can be viewed. A library of country-related documents in pdf format is included.

The GIS interface is based on ArcView and some familiarity with this viewing software is required. A tutorial is included.

This application is proving particularly useful to CGIAR researchers and colleagues in Africa.

7. DEVECOL/Africa

This is a CD-based information resource prepared with USAID support by Peter Freeman & Associates for use by the PVO community and other sustainable development field

workers. It allows searches of site-specific documents from a map interface. The CD contains base maps for all of Africa at different scales, soil maps, agroclimatic maps and maps showing the suitability of soils for major cereal crops. These maps and various ways to use them are described in the help file. The CD contains a digital library of development and research case studies. The user can find documents about site-specific development experiences, according to the environmental characteristics of the site, view the document sites on the various maps and access the full text of the documents.

DEVECOL/Africa is designed for use by sustainable development field workers who do not possess GIS skills and access to documentation centers. Examples of uses are given in a help file and will be made available on the Food Aid Management web site (www. Foodaid.org)

C.Strategic Planning Tools

There are many different techniques that can be employed for the identification of strategic objectives, the development of results frameworks, and strategies. While not exhaustive, this section provides references to a range of tools and processes that can be employed by Missions to strengthen their planning for CSPs.

1. NetWeaver™[1]

NetWeaver™[2] is an interactive, computerized tool that uses models, data and information to generate knowledge in support of decision-making. Using NetWeaver™, a knowledge engineer works with subject matter (or domain) experts to better reflect the complexity and "shades of gray" that exist (as opposed to "black and white" representations that most often are given) in the contexts and about conditions in which development and humanitarian assistance take place. It does so by using "fuzzy logic" that all but eliminates bivalent logic (e.g., a condition that we think "if it is not totally true than it must be false" or "if we've not totally succeeded than we have totally failed"). Thus, one of the greatest advantages of NetWeaver™ is that it is only necessary to define the very best or the very worst scenario since all other scenario levels are indicated by their level of membership in the "fuzzy" set (e.g., we're 75% toward achieving our goal or we are 30%). This provides an extremely useful management tool for decision makers because it opens up new opportunities to quantify qualitative relationships and degrees of truth even when these relationships are highly complex, when data are incomplete or non-existent (but expert opinion is used to try to compensate for it), or not easily quantified. This knowledge can be used to effectively and quickly make adjustments to projects or

[1] This write-up has been adapted almost in its entirety from "A Brief Description of NetWeaver™: It's Potential to Assist Organizations in Developing Results-Oriented Strategic Plans, Integrating Information for Improved Decision-making, and Managing for Results", written by J. Kathy Parker, Max W. McFadden, Michael C. Saunders, and Bruce J. Miller, The Heron Group LLC. September 12, 2000 DRAFT

[2] NetWeaver™ was developed by The Heron Group, LLC. It is only available through The Heron Group, LLC. More information on this tool may be obtained through accessing the website, www.herongroupllc.com.

activities in the field, adjust management decisions to change resource allocations at any level, and/or terminate non-productive lines of work.

NetWeaver™ can be used to explore any problem area where planning and decision-making are required, e.g., community-based natural resource management, famine prevention, reduction of economic and social impact of natural disasters). Thus, using NetWeaver™ as a tool to facilitate planning and management, USAID can more effectively:

- develop results-oriented strategic plans (e.g., Country Strategic Plan, Report on Results, Research Program Strategic Plans),
- integrate information for improved decision-making (e.g., Environmental Trends Analysis), and
- manage for results.

NetWeaver™ can be used in several different ways in developing strategic, results-oriented plans. It can be used to facilitate teams in the identification of strategic objectives, intermediate results, and indicators for monitoring and evaluation. NetWeaver™ can also be used to model dependency based networks (akin to Results Frameworks) to examine relationships (e.g., environmental and economic sustainability) both within and among networks/frameworks. Once dependency networks have been modeled, NetWeaver™ can test assumptions and hypotheses as data become available. This provides team members and project/activity implementers with an opportunity to explore a range of alternatives, using actual or anticipated data, based on expert input to determine "if we do this (activity), will we get this (desired result)?"

NetWeaver™ can be used to integrate information for improved decision-making by utilizing dependency networks/frameworks to establish linkages between and among data points in multiple databases. Once these links are established, NetWeaver™ can either extract information directly from those databases and process it, or a new database can be created, processed, and stored by NetWeaver™. In either case, NetWeaver™ has the capacity to handle all kinds of data including spatially referenced data, and can display it in a GIS format.

NetWeaver™ can facilitate efforts to manage for results by providing an opportunity for managers to have access to the best information available. Adaptive managers have to make judgment calls every day, many of which result in costly and potentially controversial endeavors. In managing for results, managers must be constantly aware of the possible threats to the internal validity of the hypotheses that articulate the basis of the dependency relationships in the efforts they have planned and are implementing. Reducing the risks and uncertainties of these and similar kinds of threats is a major concern. NetWeaver's ™ ability to model dependency networks, to incorporate all manner of data, to integrate that data, to utilize fuzzy set logic to improve qualitative relationships, and to portray information in an easily understandable format, provides managers with new insights on the nature and levels of uncertainty and risk they are taking.

Currently, NetWeaver™[3] is being used to assist in learning from the implementation of the World Bank funded Community Environmental Management Program (CEMP) in Zambia. CEMP has encountered a number of challenges during the implementation process. NetWeaver™ is being applied to test the existing CBNRM model that provides the theoretical basis for CEMP, with a focus on enhancing the design phase of CEMP activities and their monitoring over time. NetWeaver™ will also be used in developing the next phase of CEMP.

2. Scenarios

Scenario building techniques have primarily been used in the private sector by multinational corporations for planning. These techniques are increasingly being used in the public sector. One notable scenario exercise applicable to USAID's CSP development process is "Kenya at the Crossroads" (www.kenyascenarios.org). Scenario building techniques help identify surprises and discontinuities in trends, pitfalls, and opportunities; stimulate and encourage thinking beyond traditional approaches to problem solving and exploitation of opportunities, help government, private sector and civil society groups better determine the outcomes of certain actions before they are actually taken, and provide a consistent framework and language for discussing and dealing with the complex conditions and options related to development issues. The process used for scenario building is one that encourages groups with varied or conflicting interests to identify the widest possible common ground from which new forms and action can be developed and launched. For a description of the scenario building process and basic principles, see www.idongroup.com.

3. Dynamic systems modeling.

Models of dynamic systems serve to define relationships in ecological and economic systems and to better understand and clarify the dynamics involved in a development problem. The models have several uses. They can be used to test hypotheses about causal linkages.. They can be used to arrive at a consensus about causality and linkages. They can be used to answer "what if" questions and check development hypotheses. As described below, they do not require a lot of hard data.

Africa Bureau's SD is supporting work at the University of Maryland Institute for Ecological Economics on the application of dynamic systems modeling to USAID planning tasks.

The emphasis in these systems models is on the causal relationships among variables, rather than the statistical relationships. Shifting the focus to these causal helps to deal

[3] USAID's Africa Bureau is currently funding two consultants with expertise on the use of NetWeaver™ to examine the World Bank funded Community Environmental Management Program in October 2000.

with the limitations of data availability. The focus on causal relationships also allows us to include important qualitative, or "soft" variables in development hypotheses: knowledge, concern over the status of natural resources, gender-related access to capital, and other variables that are difficult to measure or express in quantitative terms.

The models, and the process of model development, are particularly useful for developing and illustrating hypotheses about how certain variables are related to one another. They are also useful for developing scenarios -- answers to "what-if" questions concerning the ecological-economic system you are working in. These future scenarios provide one way to test the assumptions or hypotheses that make up the model..

Systems models can be used to develop consensus about ecological-economic relationships in a given area. When used this way, it is the process of model building, and the conversations that are involved, that are especially useful, sometimes more so than the final model.

Developing a model

Developing a model requires translating one's basic understanding of underlying ecological-economic linkages into formal terms. When the modeling process involves a group, the objective is to state the basic understandings of these linkages and portray them in a systems diagram that establishes a formal structure of stocks, flows, and related variables. The formal structure of the simulation model brings a certain discipline to the conversation about these linkages, and makes it easy to identify points of agreement as well as disagreement the modelers' understanding of the causal dynamics of a system.

Model development generally involves a small group of interested individuals who meet in short workshops over the course of weeks or months. Recent efforts by USAID have involved a group of four to ten experts meeting for a couple of hours on several occasions.

These models have a high degree of generality, the relationships they reflect can often be applied broadly and at many scales. Developing a research or management model requires greater detail than that required of the type of model described above. Adding details tends to make a model more realistic for a specific instance, but less generally applicable.

Uses in CSP

To date dynamic simulation modeling has not been used in the context of Country Strategic Plan exercises. However, such modeling is being applied to an on-going research effort by USAID/Africa/SD to understand the dynamics of Community Based Natural Resource Management. More details can be found on the FRAME web site ("Dynamic modeling of ecological-economic systems," April 11, 2000; or "Simulation modeling of hypotheses for African development," forthcoming, by John C. Woodwell)

4.Weighted Ranking

Weighted ranking is a tool that can be used to select among environmental issues and problems that are most important and critical to address in the development of strategic plans. It involves assigning a position to something relative to other similar things by use of different criteria. As such, it can also be used to select among alternative strategies and activities to address an identified problem and to achieve a specified result. A good primer for this technique is found in The Thinker's Toolkit cited above. The author provides step-by-step procedures and examples.

Tables 2 and 3 on page 44 in this section illustrate a weighted ranking exercise applied to testing the likelihood and importance of various assumptions attached to the Strategic Objectives of a CSP. Probabilities of assumptions holding and a ranking of their importance for two scenarios – optimistic or rosy, and pessimistic, or dark – are computed. The table is an illustration of this tool,

The Thinker's Toolkit provides excellent reviews, descriptions, examples, and guidelines for selecting and applying a variety of techniques that can be employed to strengthen the strategic planning process for Mission SO teams. In addition to the two techniques reviewed above, it includes guidelines for constructing a utility matrix, decision/event trees, and rigorous hypothesis testing.

D. Tools for Identifying Environmental Issues

These tools and guidelines can be used to help Missions identify environmental issues for Environmental Threats and Opportunities Assessments, Conflict Vulnerability Assessments, PVO programs, Food for Peace Programs, and strategic objectives in all sectors.

1. Geospatial tools referenced in section B above.

2. Environmental Guidelines for Small-Scale Activities in Africa: Environmentally Sound Design for Planning and Implementing Humanitarian and Development Activities. edited by Knausenberger, W., Booth, G., Bingham, C., and Gaudet, J. Technical Paper No. 18, June 1996, SD Publication Series, Office of Sustainable Development, Bureau for Africa.

This paper provides excellent guidelines for identifying environmental issues associated by a range of small-scale activities per sector, as well as environmental assessment principles and procedures.

3. The Environmental Documentation Manual

The Environmental Documentation Manual (EDM) was produced for the Food for Peace Program. Its primary purpose is to provide information on how to do EIAs. However, in covering these issues, it guides planners in the identification of environmental issues related to Food for Peace programs that are relevant for the agricultural and enterprise development sectors as well. The manual is available on the USAID Food Aid website. www.foodaid.org/usaid.doc

The NetWeaver™ tool, processes used for conducting an ETOA, and processes involved in causal flow diagramming, and other techniques reviewed in Section C above can also be of use to identify environmental issues during the strategic planning process.

Table 2: Likely impact of assumption failure—Rosy Scenario

GOAL/OBJECTIVE	Likelihood of Impact on Goal/Objective by Assumption failure															
	US Nat Interest (L=0.85)		GRA Control (L=0.65)		GRA Resp (L=0.75)		IDP Return (L=0.65)		Demob Ok (L=0.50)		Dimin Relief (L=0.65)		Donor Collab (L=0.85)		No Disastr (L=0.50)	
	I	LxI	I	LxI	I	LxI	I	LxI	I	LxI	I	LxI	I	LxI	I	LxI
Households & Communities Improve	.10	.09	.95	.62	.95	.71	.75	.49	.65	.33	.95	.62	.25	.21	.95	.48
SO1: Enhanced Food Security	.25	.21	.95	.62	.95	.71	.85	.55	.85	.43	.95	.62	.25	.21	.95	.48
SO2: Constituencies Strengthened	.75	.60	.95	.62	.85	.64	.75	.49	.85	.43	.85	.55	.25	.21	.75	.38
SO3: Improved MCH, HIV/AIDS Serviced	.25	.21	.95	.62	.85	.64	.50	.33	.75	.38	.65	.42	.50	.43	.25	.13
SO4: More Market-Oriented Economy	.65	.55	.85	.55	.85	.64	.25	.16	.65	.33	.85	.55	.25	.21	.50	.25

Table 3: Likely impact of assumption failure—Dark Scenario

GOAL/OBJECTIVE	Likelihood of Impact on Goal/Objective by Assumption failure															
	US Nat Interest (L=0.95)		GRA Control (L=0.75)		GRA Resp (L=0.90)		IDP Return (L=0.95)		Demob Ok (L=0.80)		Dimin Relief (L=0.95)		Donor Collab (L=0.95)		No Disastr (L=0.85)	
	I	LxI	I	LxI	I	LxI	I	LxI	I	LxI	I	LxI	I	LxI	I	LxI
Households & Communities Improve	.10	.10	.95	.71	.95	.86	.75	.71	.65	.52	.95	.90	.25	.24	.95	.81
SO1: Enhanced Food Security	.25	.24	.95	.71	.95	.86	.85	.81	.85	.68	.95	.90	.25	.24	.95	.81
SO2: Constituencies Strengthened	.75	.71	.95	.71	.85	.77	.75	.71	.85	.68	.85	.77	.25	.24	.75	.64
SO3: Improved MCH, HIV/AIDS Serviced	.25	.24	.85	.64	.85	.77	.50	.48	.75	.60	.65	.59	.50	.48	.25	.21
SO4: More Market-Oriented Economy	.65	.25	.85	.64	.85	.77	.25	.24	.65	.52	.85	.77	.25	.24	.50	.43

4. Network analysis, flow charts and decision trees

Network analyses and flow charts highlight major components of a "system" and how they are inter-linked. They are similar to dynamic systems models and could be considered precursors to such models. Decision trees show how stakeholders may respond (decide) in different ways to a project activity, depending on their resource base and management capacity or on the biophysical environment where they are living.

See: Bellows, B. 1996. Indicators of Sustainability. Workbook for the SANREM CRSP. Washington State U/ U. of Wisconsin.

See also the following USAID Development Exchange Clearinghouse holding:

Proceedings of the indicators of sustainability conference and workshop, August 1-5, 1994, Arlington, Virginia
Publication Date: 1995
Author: Bellows, Barbara, ed.
Institutional Author: Washington State University;Western Carolina University. Center for PVO University Collaboration in Development;USAID. Bur. for Global Programs, Field Support and Research. Center for Economic Growth. Ofc. of Agriculture and Food Security
Document Type: Conference Proceedings
Order Number: PN-ABX-493
Series Title: SANREM CRSP [sustainable agriculture and natural resource management collaborative research support program] research report, no. 1-95

D. Tools for Choosing and Monitoring Environmental Indicators

The following resources and references listed below are useful for choosing and monitoring environmental indicators.

1. Bellows, B. 1996. **Indicators of Sustainability**. Workbook for the SANREM CRSP. Washington State U/ U. of Wisconsin

2. Booth, Greg. 1993. **Biodiversity Impact Indicators within a Natural Resources Management Framework for sub Saharan Africa.** Washington, DC. USAID

3. Herweg, Karl; Steiner, Kurt, and Slaats, Joep, n.d. **Sustainable Land Management: Guidelines for Impact Monitoring: Toolkit Module.** Centre for Development and Environment, Berne

This well organized and well presented document will help users develop hypotheses, test assumptions and identify indicators. A wide array of tools are summarized and referenced.

4. Marks, Malcolm K., 1996. **Monitoring and Evaluation Toolkit.** Prepared for USAID/Niger through the Agricultural Sector Development Grant. International Resources Group, Washington, DC

5. OECD. 1997. **Environmental Indicators for Agriculture**. OECD, Paris, France.

6. Van der Burg, G. and Caldwell, R. 1998. **Monitoring Evaluating Reporting – MER. Management Tools for Development Organizations**. CARE International (www.kcenter.com)

7. Weber, Fred. 1990. **Preliminary Indicators for Monitoring Changes in the Natural Resources Base.** USAID Program Design Evaluation Methodology No. 14. Washington, DC. USAID

8. World Bank, 1991. **Environmental Assessment Sourcebook.** Washington, DC.

9. World Bank, 1999. **Environmental Indicators**. On the Environmental Economics and Indicators website. www.esd.wordbank.org/eei

The NetWeaver™ tool referenced above under Section C will also facilitate the selection and monitoring of environmental indicators.

Table 4. Tools for Strategic Environmental Planning (see text for descriptions of tools)

Planning steps	Environmental dimension	Data gathering/analysis tools (illustrative)
Stage 1 – Mission-wide strategic problem analysis, trend analysis and assessments		
Design and agreement on the strategic planning process	Possible engagement of environmental ministry or environmental units in line ministries; host country university with environmental programs; USAID/G or USAID/Africa Bureau/SD, other donors, UN agencies.	Scenarios
General or sector specific assessments	Environmental analysis (as per requirements of Sections 118 and 119) Environmental Threats and Opportunities Assessments	Land cover change maps from satellite imagery Cartographic analysis & display
Stage 2 – SO team sector assessment update, information gathering and review from Stage 1		
Strategic problem analysis, trend analysis and assessments	For Environment/NRM SOs: .Special assessments as deemed necessary, e.g. of completed or on going environment/natural resources management activities, of critical or vulnerable areas. For non ENV/NRM S0s. Examination of the ecological and or natural resources aspects of the S0's sector and of the activities that are typical or on-going..	Cartographic analysis and display with GIS programs Systems diagrams Pressure>state>.response diagrams NetWeaver™
Determination of the customer group(s)	Desk study and/or field survey to identify target population/groups and consult on their needs, desires, and their use of, access to, environmental resources.	
Identification of appropriate opportunities	Review and examination of potentials, approaches, technologies, etc., that are related to environmental sustainability and impact prevention or mitigation.	

Planning steps	Environmental dimension	Data gathering/analysis tools (illustrative)
Stage 3 - Environmental Issues Review.		
Consideration of strategic alternatives and .... Selection of the SO	Identification of environmental issues and potential environmental impacts for activities typical of the SO Identification of potential " green " solutions to expected impacts. Weighing environmental impacts or outcomes of alternative strategies, both positive and negative Ranking of environmental outcomes of alternative strategies.	Environmental impacts checklists for different sectors/technologies. Cartographic analysis of alternatives using GIS or paper maps. Weighted ranking NetWeaver™
Stage 4 –Initial development of the SO development hypothesis		
Articulation of the development hypothesis	Make explicit the hypothetical cause/effect relationships among policy, programs, actions, effects of actions on the relevant natural resources, and environments.	Environmental impact checklists Causal flow diagrams NetWeaver™
Clarification of participation requirements	Capacity of government agencies to guide/facilitate ENV/NRM management. Conflicting demands of other donors on institutions/capable local environmental professionals. The role of community and individual participation in planning and implementing actions which manage or exploit environmental resources.	Institutional Assessment Toolkits Donor program assessments Customer/participant surveys
Development of a detailed Results Framework	Consideration of the ecological processes and natural resources that will support attainment of a result Consideration of the effect of environmental impacts on the desired result. Exploration of results that would correspond to proactive environmental activities	Causal flow diagrams NetWeaver™ Environmental impact checklists Decision trees

Planning steps	Environmental dimension	Data gathering/analysis tools (illustrative)
Stage 4 –Continued		
Clarification of the critical assumptions, ultimate customers, and illustrative activities for each IR	Scrutiny of specific environment and natural resources issues, opportunities, or concerns associated with the illustrative activities. Scrutiny of the environmental implications of critical assumptions required to achieve each IR	Environmental impact checklists Decision trees, causal flow diagrams NetWeaver™
Stage 5 - Performance Monitoring Plan (PMP) and Resources		
Performance Monitoring Plan Resource requirements	Environmental and natural resource indicators to include in the PMP. Definition of environmental or natural resource base line studies that may be needed. Monitoring environmental and natural resource indicators at appropriate time intervals Cost of environmental mitigation and management, or of EMEMP, if expected. Cost of environmental assessments and of needed baseline, monitoring, and evaluation studies related to environmental aspects of activities.	Environmental indicator guides NetWeaver™ Environmental monitoring guides

ACRONYM LIST

AFR/SD	Bureau for Africa, Office of Sustainable Development
ADS	Automated Directives System
BHR	Bureau for Humanitarian Response
CSP	Country Strategic Plan
DCW	Digital Chart of the World
EA	Environmental Analysis (per Sections 118,119)
EDM	Environmental Documentation Manual
EIA	Environmental Impact Assessment
EMEMP	Environmental Monitoring, Evaluation, and Mitigation Plan
ENV/NRM	Environment/Natural Resource Management
ETOA	Environmental Threats and Opportunities Assessment
FEWS	Famine Early Warning System
G/ENV	Global Center for the Environment
GEF	Global Environmental Fund
GIS	Geographic Information System
IDP	Internally Displaced Persons
IEE	Initial Environmental Examination
IGAD	Intergovernmental Agency on Development
IR	Intermediate Result
NEAP	National Environmental Action Plan
NGO	Non-Governmental Organization
OFDA	Office of Foreign Disaster Assistance
PEA	Program Environmental Assessment
PMP	Performance Monitoring Plan
REDSO/ESA	Regional Office of Economic Development Support Office/East and South Africa
RF	Results Framework
RIIS	Regional Integrated Information System
SEP	Strategic Environmental Planning
SO	Strategic Objective
SPO	Special Objective
USAID	U.S. Agency for International Development

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